

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 254100, CST 8:32A 91/2

CAPCOM is wondering what is going on with the
tape recorder.

SC Okay, no strain.

PAO And at 25 hours, 46 minutes into the
flight, that is our status. This is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68 GET 260600, CST 8:57a 92/1

CAP COM Apollo Control, Houston, you are 26 hours, six minutes into the flight. We are 187,400 miles from home, and our velocity 5,118 feet per second. In the past 15 or 20 minutes, we have recorded this brief conversation.

CAP COM Apollo 8, Houston, over.

SC Roger

CAP COM Roger. AT 26 hours GET we'll be switching our antennas back again at Madrid and you can expect the goods on your com ribbon.

SC Roger. Houston, Apollo 8.

CAP COM Go ahead, Jim.

SC I noticed that you skipped the I&G alignment for about 26 hours because we were still asleep. Do you want to include that in here, or do you think it is required?

CAP COM Roger, Jim. We think it is going to be required prior to the next set of P23 sightings, and we're suggesting that it be put in at 2745 rev in the flight plan. We'll have a more complete flight plan update in here shortly.

SC Okay, fine. We're in the process of having breakfast.

CAP COM Roger, understand.

CAP COM Apollo 8, Houston,

SC Go ahead, Houston.

CAP COM The tape dumps completed at 31, you can go ahead and record and in a little bit send it down.

SC Roger, will do.

CAP COM And that wraps it up for this period. This is Apollo Control, Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 262700, CST 9:18A 93/1

PAO This is Apollo Control Houston, 26 hours, 27 minutes into the flight. We are 108 400 miles out. The velocity now is 5080 feet per second. We have had no conversation with the crew the past 20 minute period. We do have this advisory however, on the trajectory of the S-IVB. At this particular point in the mission, 26 and one-half hours, the S-IVB is placed by our best estimates at a point 800 miles - it's moving on a track - 800 miles outboard of the spacecraft and 1200 miles behind the spacecraft. I'll say again, it is 800 miles outboard of the spacecraft and 1200 miles behind, diagonally behind the spacecraft. Both are nautical references. The point of closest approach of the S-IVB and Apollo 8 will be according to our trajectory experts, at a point of when the spacecraft rounds the Moon for the first time, the S-IVB will go by - they will pass each other and they will be approximately 1800 nautical miles between the two of them at a point just as the spacecraft is acquired by the Earth after its first around, and as its completing its first trip around the Moon. The path of the S-IVB will be outboard of the Moon and it will move on into its solar orbit. The distance again, the point of closest approach is the two move about the Moon, the S-IVB moving off on the Sun side of the Moon, the spacecraft making its first pass around. They will come within 1800 nautical miles of each other. And that would occur at roughly, about 73 hours into the flight. That is based on a LOI of about 72 hours. At 26 hours, 29 minutes into the flight, this is Apollo Control Houston.

END OF TAPE

APOLLQ 8 MISSION COMMENTARY, 12/22/68, GET 265100, CST 9:42a 94/1

PAO This is Apollo Control Houston at 26 hours 51 minutes into the flight. We are - I'll have to estimate, based on the wall map, 112,000 miles out. We have had this brief conversation in the last few minutes.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston. Apollo 8 here.

CAPCOM Disregard. We were going to talk about the high gain, but you beat us to it.

SC Okay.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston.

CAPCOM Roger, Jim. We would like to take control of the tape for a few minutes to make sure that we got all that last dump. Over.

SC Okay, stand by one.

CAPCOM Roger.

SC You've got it.

CAPCOM Thank you, sir.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston. Go ahead.

SC All right. I just noticed that I can hear those RTC's coming through on normal voice.

CAPCOM What does it sound like, Bill?

SC It's weak --

CAPCOM Apollo 8, Houston. Over.

SC Go ahead.

CAPCOM Roger. I have a flight plan update for you at your convenience.

SC Ready to copy.

CAPCOM Apollo 8, Houston. Will you copy? Over.

SC Roger, ready to copy.

CAPCOM Okay, Bill. This will be on page 2 dash 22 of your flight plan. For the command module pilot, I've already mentioned it to him, but at the top of the page, at about 27, 45 actually, we would like him to do a P-52 and IMU alignment. And then, the P-23 should be done as scheduled. Those four stars, Procyon, Regulus, Alphard, and Spica, we realized Alphard may not be too good a star, Regulus is about 3 degrees above the horizon, and Spica is at a 48-degree trunnion angle, so I guess what we are saying is if Jim has difficulty doing one set on each of those four stars, we suggest that he omit whichever he is having difficulty and pick it up by doing two sets on some other star that he likes. Over.

SC Roger, understand.

CAPCOM All right. In the lower right hand corner of page 222 the passive thermal control attitude should

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read pitch 224 degrees, yaw 020.

SC Roger, copy.

CAPCOM And at the next stage, at about 29 hours, you can resume the normal flight plan. We would like to make one addition at 2930, add a waste water dump, even though one is not really required at that time. We would like to get the dump out of the way so we can track you uninterrupted without any dumping, you know, as we are coming up on midcourse correction number 3. Over.

SC Roger.

CAPCOM That's about all, Bill. You got any questions on this?

SC No, it looks pretty good. We've been saving up some water of our own to dump here, so that will work out all right.

CAPCOM Very good. And don't ruin Jim's optics.

SC Right.

CAPCOM Apollo 8, Houston.

SC Go ahead.

CAPCOM Roger. We would like POOACCEPT please. We would like to send you up a P-27. It's a LM state vector, going into the LM slot only, and we do not want you to transfer it over to the CSM. Apollo 8, Houston. Did you copy?

SC Roger, you got it.

CAPCOM Okay, we got it. We're sending you a LM state vector and we would like you not to transfer over to the CSM slot.

SC Roger.

CAPCOM Thank you.

CAPCOM Apollo 8, Houston.

SC Apollo 8. Roger. Are you still planning an MCC-2 at 28 hours? Over.

CAPCOM Stand by one, Bill. Bill, negative. That midcourse correction number 2 has been cancelled. It's magnitude was less than 1 foot per second, so we decided not to do it. Over.

SC Okay, thank you.

CAPCOM And you've got the computer again, if you go to BLOCK.

SC Okay. --

PAO This is Apollo Control again, 109,9 - let's make it 110,000 even - miles out. Our velocity 5028 feet per second. Our spacecraft weight now is down to 63,000 pounds, 63,023 pounds. I think in the course of that conversation, you heard that we see no further need for any more midcourse corrections between now and their journey to the moon. At 26 hours 57 minutes, that is our status.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 272300, CST 10:13A 95/1

PAO This is Apollo Control Houston, 27 hours,
23 minutes into the flight. A few minutes ago, Mike Collins
had this conversation with the crew.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, go ahead.

SC Are you still computing the pericynthian
time of 6 and 9/10th.

CAPCOM Standby, we will get an update for you.

SC Okay.

CAPCOM Apollo 8, Houston, your 6 and 9/10th
pericynthian is still good plus or minus a minute and we
will get it down to (garble).

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 274500, CST 10:36a 96/1

PAO This is Apollo Control Houston at 27 hours 45 minutes. We are 112,000 miles out. Our velocity is 4900 feet per second, and in the last few minutes, we recorded some - a very brief conversation on a star update to the crew. Here is that conversation.

CAPCOM Apollo 8, Houston.

SC Roger. This is Apollo 8.

CAPCOM Okay, Bill. We just got your readout on your voice tape and we will be back with you on it shortly. Over.

SC Okay. Houston, I'm going to be doing my alignment at this time. I'm in a good position for viewing the stars.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 280800, CST 10:59A 97/1

PAO This is Apollo Control Houston, 28 hours,
8 minutes into the flight. It has been quiet during this
most recent period, we have not heard from the crew. Our
present distance, 113 000 nautical miles from Earth, our
velocity 4909 feet per second. This is Apollo Control Houston.

END OF TAPE

PAO This is Apollo Control Houston, 28 hours 29 minutes into the flight. I want to clear up a velocity reading. Apparently I gave a reading earlier which either was in error, or I read it wrong. Our present feet per second is 4875. I say again 4 8 7 5, and our altitude is 114,000 nautical miles. Within the last hour in a private conversation we have learned that there is some -- a little nausea aboard. Frank Borman reported an upset stomach, but Chuck Berry tells me it is getting better. That is all we know about it right now. Here is some tape conversation just recorded.

CAPCOM Apollo 8, this is Houston with voice check. Over.

SC Houston, Apollo 8. Read you loud and clear now. How us??

CAPCOM Oh, good! Reading you loud and clear, 1 2 3 4 5 5 4 3 2 1. Am I cutting in and out still? Over.

SC Nope. All the numbers are coming up nicely.

CAPCOM Okay. Thank you, Jim.

CAPCOM Apollo 8, Houston. We are going to switch antennas at 2820. Stand by for our blitz.

SC Roger Houston. And we will start passing thermal control, and we are maneuvering to P-23.

CAPCOM Roger, understand, maneuvering to P-23, I understand.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, go.

SC Roger. You copy 100 bit rate now for this P-23?

CAPCOM Negative, Bill. We are getting low bit rate now.

SC If you go high bit rate we will not bother recording it.

CAPCOM Roger. We just went to high bit rate.

PAO This is Apollo Control again. I say again on the nausea, Frank Borman reported an upset stomach. He has taken some medication, and he is apparently feeling better. He so reported to Dr. Berry. Bill Anders reported that he was not feeling his best. We don't know whether it is some sort of virus or just what, but I am sure that Chuck Berry will have more for us at the Change of Shift Briefing today. I say again the situation was reported to us within the last hour in a private voice tape down, that Frank Borman was reporting some stomach upset and not feeling particularly well. From strictly a layman's point of view it sounded like the symptoms of the Asian Flu, but I am not going to attempt to diagnose it. At the same time Bill Anders was reported not feeling not completely himself either. but no overt signs of a cold or flu. Jim Lovell on the other

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PAO ... within -- since the original communication an hour ago, the crew has reported that they are generally feeling better. At 28 hours 32 minutes into the flight, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 285500 CST 1146a 99/1

PAO This is Apollo Control Houston at 28 hours 55 minutes into the flight. Apparently our earlier report regarding velocity is still causing a great deal of consternation in the Press realm, so we will go through it one more time. Through error on our part or on the part of a chart, we apparently reported a discrepancy in the velocity. We want to correct that error. The present velocity we read on our Space Digital Chart is 4833.3 feet per second, and it is getting smaller as is proper. It will continue to get smaller until the spacecraft reaches the lunar sphere of influence which is about 60 000 miles from now. At that point the spacecraft will slow down to approximately 3900 feet per second; these are earth-related feet per second, at which time it will begin to speed up slightly as it makes its final approach to the moon. So, once more, our present velocity, in terms of feet per second, 4800 since we talked to you just a second ago. It is now down to 4832 feet per second even, 4832. Our distance 115 629 nautical miles from Earth. We have had no additional conversation with the crew since our last report. This is Apollo Control Houston at 28 hours 57 minutes.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 291800, CST 12:09P 100/1

PAO This is Apollo Control Houston, 29 hours, 18 minutes into the flight. Our velocity, 4790 feet per second. Our distance, 116 658 nautical miles. In recent minutes, we have recorded this conversation and we have every reason to believe that it will be a continuing conversation, because we have just heard additional calls. Let's have the tape.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, over.

CAPCOM Apollo 8, this is Houston, over.

SC Roger, cislunar nav accomplished. We did two sets on stars 16, two sets on 22, and one set on 21.

CAPCOM Roger, understand P23 completed, two sets on 16, two on 22, and one on 21.

SC Roger, it was getting a little late, so we didn't want to start on 26.

CAPCOM Roger, understand Jim.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, go ahead.

SC Is our previous PTC attitude okay for the next session?

CAPCOM Roger, Bill. The one that we updated an hour or so ago, IE pitch 224, yaw 020 is a good one.

SC 22420, Roger.

CAPCOM Roger.

CAPCOM Apollo 8, Houston, we will change antennas in about 2 minutes. You can expect a glitch in your comm.

SC Roger.

CAPCOM Roger.

SC How are all of the systems looking down there, Houston?

CAPCOM Apollo 8, Houston, you are looking good here in all respect. Apollo 8, Houston, over. Apollo 8, this is Houston, over. Apollo 8, this is Houston, over.

PAO This is Apollo Control. We are looking presently at the bio-med readout on Bill Anders, and it looks like this, a mean heartrate of, around between 68 and 69. The highest the system has seen, in this sample period of roughly an hour is about 88, the lowest its seen is 51. His mean respiration rate is 10, and, let's see, that's all of the data we have on that chart. No additional conversation since we gave you those readings. At 29 hours, 21 minutes, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 294249, CST 12:33a 101/1

PAO This is Apollo Control Houston. Within the last half-hour, several members of the crew here have had another conversation with the Apollo 8, in private, regarding their medical situation and apparently it is much improved. We will have this tape for you shortly, but in general, Borman reports feeling much, much better. We'd estimate it will be 15 minutes before we have the tape. This is Apollo Control Houston.

END OF TAPE

PAO This is Apollo Control Houston 29 hours 47 minutes. I would like to amplify a bit more on this most recent taped conversation. Mike Collins opens it and this was a private conversation conducted from the communication room in this building, building 30. Collins asked the crew for additional detail on their condition and Frank Borman comes on the line and he describes his problems and he also says he has had several hours of rest this morning and is feeling much, much better. Jim Lovell, in the conversation, also reveals, for the first time, that he apparently wasn't feeling too well when they first went into orbit yesterday, and this was the first we had learned of that. He, of course, said that this was a momentary thing and he describes it in very finite terms. Let's see, that covers everybody but Bill Anders and he reports just generally feeling better and apparently a case of the butterfly stomach or some such this morning. Borman elaborates a bit and says he thinks he had a 24-hour virus. He says he noted some diarrhea, an upset stomach, and he describes some vomiting. Our head physician, Dr. Berry, gets on the line with Borman and presses him for additional detail, which is forthcoming but, in the end, Berry feels that the situation is considerably better than when we first learned of it, perhaps an hour or more ago. Within perhaps 5 or 10 minutes we should have the tape, which is now in route to our news center in building 1, on the line for you to play, prior to our news conference, which will be at 1:15 Houston time. Other than that, we are right on the flight plan and we are still scheduled for a television pass, beginning at 2:06 Houston time. As we have been talking, we have recorded this additional communication from Apollo 8 and we will play it for you now.

SC Houston, Apollo 8, how do you read?

SC Houston, Apollo 8.

SC Houston, Apollo 8.

CAPCOM Roger, Apollo 8, Houston. Go ahead.

SC Roger. We are dumping some water we collected here and we are ready to dump the waste water down to 25 percent. Do you concur?

CAPCOM Roger, we concur. We are standing by for your dump.

SC All right. We've already started the other.

CAPCOM Roger, thank you.

CAPCOM Apollo 8, Houston.

CAPCOM Apollo 8, this is Houston, over.

CAPCOM Apollo 8, this is Houston, over. Roger.

We are getting geared up down here to do the first of the

comm tests. We will be doing an omni comm test, which is on your flight plan, listed mode 7.8 and we will let you know when we are ready to proceed.

SC Roger.

PAO This is Apollo Control Houston. That conversation concluded very briefly there a great amount of static, but we now have the conversation in which we have alluded to in two earlier announcements, a rather full development on examination of the crew medical problems. You will hear first Mike Collins, the capsule communicator, he is talking with Bill Anders. Then he talks to Frank Borman, then Chuck Berry, who I believe identifies himself, comes on the line. Here is that tape now.

CAPCOM Apollo 8, this is Houston. Over.

SC Go ahead, Houston. How do you read?

CAPCOM Roger. We are reading you loud and clear. We are on a private loop now and we would like to get some amplifying details on your medical problems. Could you go back to the beginning and give us a brief recap, please?

SC Mike, this is Frank. I'm feeling a lot better now. I think I had a case of the 24-hour flu, intestinal flu.

CAPCOM Roger, understand. When did you first notice it? Or can you go back to P00 and start us out at the beginning of your problem?

SC Roger. About, I guess about 20 hours, 19 hours yesterday.

CAPCOM Roger. Understand about 19 hours yesterday. We were confused by something Jim said in reference to getting out of the suits. He said that he felt a little bit uneasy when he first got out of the couch and started to get out of the suits and that passed away and that you and Bill had, we think, noticed similar things when you took your suits off. Is this so?

SC Just when you get out of the seats and start moving around for a while.

CAPCOM Roger. Understand. We understand this does cause nausea, in all three of you. You have all three noticed it when you've gotten out of the suits for the first time or any time, is that right?

SC Roger. Uneasiness, not nausea really, but a sort of awareness of motion, like the zero g airplane.

CAPCOM Roger, understand.

CAPCOM Apollo 8, this is Houston.

SC Go ahead.

SURGEON Frank, this is Chuck. The story we got from the tape and from Jim a while ago went like this. At

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some 10 to 11 hours ago, you had a loose BM, you vomited twice, you have a headache, you've had some chills, and they thought you had fever. Is that firm?

SC Everything is true, but I don't have a fever now. I slept for a couple hours and the nausea is gone, and controlling the loose BM. I think everything is in good shape right now.

SURGEON Did you have a sore throat?

SC The roof of my mouth was sore, Roger.

SURGEON And as we understand it at the moment, Frank, neither Bill nor Jim have anything at the present time except some nausea. Is that right?

SC No, none of us are nauseated now. We are all fine now.

SURGEON Okay, and you have taken the Lomatil?

SC No, no we haven't. Pardon me, yes they have.

SURGEON They have and you have not?

SC Roger. I just woke up, Chuck. They took them while I was asleep.

SURGEON Okay, I think you ought to take one Frank, and the Marezine will help if that nausea returns. The Marezine will knock that -

SC Houston, we are going to start doing this waste water dump down to 25 percent. Do you concur?

CAPCOM We don't know, Bill. If you can stand by one, we're isolated from those experts at this time.

SURGEON Frank, did you read that you are to take the Lomatil and the Marezine can be used if you do get nauseated, any one of the three of you.

SC Okay, thank you.

CAPCOM Apollo 8, Houston. We are closing this circuit down and we will be up in our normal voice loop in about 5 minutes and then we will get on with the water dump.

SC Roger, and you are still cutting out, Houston.

CAPCOM Roger, understand.

PAO This is Apollo Control Houston. That concluded the private conversation to determine the medical status of the crew. We learned, of course, in the conversation, obviously we learned about some things that were going on yesterday, much earlier in the flight, I think the report was 19 hours, which we had not learned until this point. We are satisfied now that the crew, the situation is certainly improving and certainly settled down. At 29 hours 57 minutes into the flight, we are 118,400 miles out, and we are moving at a velocity of 4739 feet per second. This is Apollo Control Houston.

END OF TAPE

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SC Roger, Houston. We are dumping waste water now out of these nozzle templet.

CAPCOM Standby. Looks good Bill, 64 degrees, over.

SC Roger, we just got an 02 low high from purging to vent line on the cabin.

CAPCOM Roger, understand.

SC How is everything in Houston.

CAPCOM Oh, everything down here is GO, how are you?

SC Fine, what is the news?

CAPCOM Well, did you get the INTERSCHOLASTIC NEWS SUMMARY we sent up to you a couple of hours ago. It might have been during your rest period. We gave you a couple of football scores. One of them in particular was Army 21, Navy 14, over.

SC 1, 2, 3, 4, 5, 6, 7, testing out. I got that one.

CAPCOM Good, the Cowboys were destroyed by the Cleveland Browns yesterday. The Pueblo crew is expected to be released. And I now hear our air to ground has got a lot of background noise, standby, we are going to go through these comm test modes on tape 223 of the flight plan, over.

SC Roger.

CAPCOM Apollo 8, Houston, would you go S-band OFF switch to down voice backup, over.

SC Down voice backup, Roger and out.

SC Houston, be advised that it looks like your twin bars are clipping your voice during your transmission.

CAPCOM Roger, understand. Are we still experiencing this intermittent condition that was there a few minutes ago?

SC Not always, but often in the beginning and in the end of your transmission.

CAPCOM Roger, understand. I'll give it a little extra time.

CAPCOM Apollo 8, Houston, over. Apollo 8, Houston, could you try to find us a better OMNI antenna, over.

Apollo 8, Houston, we are unable to read you on this OMNI antenna, over. Apollo 8, this is Houston, over. Apollo 8, Houston, we understand you're copying us. While we are trying to reestablish contact with you, would you put your optics switch to 0. We show you are drifting off in trunion and request that you zero your optics. Apollo 8, Houston, we copy your optics 0, and how are you reading us now, over.

CAPCOM Apollo 8, Houston, we are down to 25 percent on your waste water dump and ready to terminate, over. Apollo 8, this is Houston, over. Roger. Our next comm test is arranging all of the test. I have four switches I would

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CAPCOM like you to throw, which will cause you
to lose voice communications for approximately 3 minutes, over.

CAPCOM Alright, the first one is S-band normal
mode voice OFF, the second S-band normal mode PCM OFF, the
third S-band normal mode ranging switch to RANGING, and forth
the S-band ox tape switch OFF, over.

END OF TAPE

PAO This is Apollo Control at 31 hours 5 minutes into the mission. We are standing by at this time to receive the first television transmission from the spacecraft. Now there is a certain amount of uncertainty just as to when that signal will be received at the station at Goldstone and transmitted to Houston. Now the spacecraft at the present time is in a slow roll as part of the passive thermal control program to maintain temperatures, and as soon as the high-gain antenna is in the proper position we expect to begin getting pictures. We will stand by and pick up the picture as soon as we have any solid video lock on them. At this time our estimate is that it will be about one minute before we pick up our TV transmission. When we begin this television transmission the spacecraft will be at a range from Earth of about 120 623 nautical miles. We will be traveling at a velocity of about 4668 feet per second. We are still standing by to receive the first indications that a picture is about to come through. We now estimate about 15 more seconds. As I said before there could be some variation in that depending on the position of the high-gain antenna. We have gotten a call from the crew we will pick that up and then stand by for pictures. That sounded like Bill Anders putting in a call to the Control Center here. We still do not have pictures. We will continue to monitor. We are getting a good signal through from Goldstone, but we still have not received any video from from the spacecraft. Now we will continue to monitor and also to monitor the audio loop for any conversations from the crew.

SC Houston, Apollo 8. How do you read?
CAPCOM Apollo 8. Loud and clear and standing
by.

SC Say again.
CAPCOM We read you loud and clear and we are
standing by.

SC Okay. Are you receiving television
now?

CAPCOM Apollo 8, Houston. We just got it.
SC You are getting it?
CAPCOM Apollo 8, we have a good picture.
SC We are rolling her. Okay, we are rolling
around to a good view of the Earth, and as soon as we get to the good view of the Earth we will stop and let you look out the window at the scene we see. Jim Lovell is down in the Lower Equipment Bay preparing lunch. Bill is holding the camera for us here for us both. Bill is going to take the camera down in the Lower Equipment Bay with Jim.

CAPCOM Roger. Okay, We are getting a pretty good picture, but if you would move it a little slower -- every time you move it around it breaks up on the scan

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SC We got you. This is known as preparing lunch and doing P-23 at the same time.

CAPCOM You have everybody standing on their heads down here.

SC How so? You have it turned upside down? you got the wrong rest band.

capcom Well we all have our problems.

SC How is the picture now, Houston?

CAPCOM They are really good.

SC Okay, now we are coming up on the view that we really want you to see. That's the view of the Earth. If you will break for just a minute, Bill is going to put on the large lens. So we will be right back with you.

CAPCOM Okay, thank you.

PAO And we momentarily lose our picture while this lens change is in progress. We will stand by for that shot of Earth.

SC Houston, we are now showing you a view of the Earth through the telephoto lens.

CAPCOM Okay. We are not receiving a picture of it now.

SC How about now?

CAPCOM Okay. We don't have a picture yet.

SC Are you seeing anything at all, Houston?

CAPCOM Okay, Apollo 8, we don't have a picture yet.

SC All right, we will put the other lens back on, and we will show you through that.

CAPCOM Apollo 8, how about standing by that for just a minute. We will check our ground link. Apollo 8, we have a picture now.

SC Okay. Let's try the other lens again then.

CAPCOM Okay, thank you.

SC Do you have a picture now?

CAPCOM That's negative. Apollo 8, belay that.

SC Okay, do you have anything Houston? We have it on the Earth.

CAPCOM We are having no showing.

SC Okay. Stand by. Okay. How about now, Houston?

CAPCOM Still no showing.

CAPCOM You don't have a lens cover on there do you?

SC No, we checked that as a matter of fact. Anything?

CAPCOM Still no showing.

SC How about now?

CAPCOM Still no showing. There is a picture. We have a picture -- okay it is a little difficult to see what we have.

SC That is the Earth, but it is not the telephoto lens, unfortunately it is just an inside lens.

CAPCOM Okay, it is coming in as a real bright blub on the screen. It is hard to tell what we are looking at.

SC You are looking through some haze on the windows too, unfortunately. And the Earth is very bright besides.

CAPCOM Okay, we got the Earth in about the center of the screen and a little bit low. It looked like there were some objects that moved across it -- the screen at the same time. Do you have any comment on those?

SC That is some of the water -- ice. It is coming off the vent nozzle.

CAPCOM Roger.

SC How does it look now?

CAPCOM Still the same thing it is -- the target is extremely bright and it is very difficult to make out what we are looking at.

SC It is unfortunate that we do not have -- we can't make the other lens work here. I don't what the problem is.

CAPCOM Okay, Apollo 8 would you verify that the ALC is on?

SC We have tried it both ways.

CAPCOM Oh, okay, thank you. What we are getting now is a good picture.

SC Say again.

CAPCOM Okay, that is a real good picture. That is the best one that we have had. How about just going ahead and just leaving your pictures inside until we can think some more of what we can do to adjust for that light?

SC Roger. Jim what are you doing here? Jim is fixing dessert. He is fixing up a bag of chocolate pudding. You can see it kind of floating by. Bill is coming up from the Lower Equipment Bay. It is unfortunate that this telephoto lens doesn't work. Show them the lens that is the culprit. This lens doesn't seem to be working right I can't understand why we're not ... problem of light transmission through it. This transmission is coming to you approximately half way between the Moon and the Earth. We have been 31 hours and about 20 minutes into the flight. We have about less than 40 hours to go to the Moon. You can see that Bill has his toothbrush here. He has been brushing

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SC REGULARLY. He is demonstrating how things float around in zero g. It looks like he plays for the Astros the way he tries to catch that thing. I certainly wish that we could show you the Earth. It is a beautiful, beautiful view with predominately blue background and just huge covers of white clouds particularly one very strong vortex up near the terminator. It is very, very beautiful. Perhaps we will get some assistance from the people on the ground and be able to determine why this other lens is not transmitting properly. Houston, did you get any light at all coming through that telephoto lens?

CAPCOM Apollo 8, we were getting what you were showing us on your normal lens. I don't think we got anything on the telephoto. We are working on it now. One of the problems seems to be that it is a low light level lens *1 Dec 69*
we're afraid that you might burn it out pointing it at something to bright. *LePine*
on Apollo 12

SC Well, the Earth is very, very bright. There is nothing in the lens you can burn out the camera still seems to be working. We can give you a luminous reading on the Earth right now if you like.

CAPCOM Frank, how about a couple of words on your health to the wide world.

SC Well we are all in very good shape. Jim is busy working preparing lunch. Bill is playing cameraman right now, and I am about to take a light reading on the Earth. We all feel fine. It was a very exciting ride on that big Saturn, but it worked perfectly. We are looking forward, of course, now, for the day after tomorrow when we will be just 60 miles away from the Moon.

CAPCOM Good. You all look great on Candid TV.

SC Okay. I just got a ready on the Earth, Houston. It is 320. The Earth is showing 320 lumens now. You get a closeup of Jim Lovell, Bill, and let everyone see he has all ready outdistanced us in the beard race. Jim has got quite a beard going all ready.

LOVELL Happy Birthday, Mother.

SC Okay. Jim is going to take a shot of us from the Lower Equipment Bay, and then we have to get back to our passive thermal control in the bar-b-que mode so that we don't get one side of the spacecraft too hot for too long a time. So we will be signing off here, and we will be looking forward to seeing you all again shortly.

CAPCOM Roger.

SC Good by from Apollo 8.

CAPCOM Thank you.

PAO We have had our picture cut off now after that television transmission. Total duration of some 20 minutes

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PAO During that TV transmission we got some very enthusiastic comments from the crew on the view from some 120 000 miles from Earth. Borman described the Earth very beautiful looking blue, covered with white clouds. He also reported that all three crewmen at this point are in very good shape and all feel fine. At 31 hours 24 minutes into the mission this is Apollo Control.

END OF TAPE

PAC

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 313900, CST2:30p, 105/1

CAPCOM This is Apollo Control, Houston. at 31 hours 39 minutes into the mission. At the present time, we have completed the shift change at Mission Control. Our Flight Director Milton Windler has relieved Clifford Charlesworth and our capsule communicator is astronaut Ken Maddingly. This is a relatively quiet period in the flight plan, it is a sleep period for Commander Frank Borman, and we do not have any significant activities listed for the other two crewmen until some 33 hours 30 minutes into the mission. Just about, two more hours before any significant crew activities are scheduled in the flight plan. On hand is an accumulated tape of conversations that occurred prior to the press conference and during the change of shift press conference. We'll play that back for you now, and then pick up with whatever conversation is going on with the crew at the time.

CAPCOM Apollo 8, Houston, request S-band normal mode ranging to OFF, and S-band normal mode PCM to PCM. I say again, S-band normal mode ranging OFF, S-band normal mode PCM to PCM.

SC Apollo 8 to Houston, will stand by in this configuration for a moment.

CAPCOM Apollo 8, Houston, three communications switch positions good. S-band (garble) to down voice backup. S-band normal mode PCM pm off. Telemetry input PCM pm high. I say again S-band tape to down voice backup. S-band normal mode PCM to OFF. Telemetry input PCM to high. Reading you weak, but clear now Bill.

SC (Too low to be understood) Apollo 8, Houston.

CAPCOM Apollo 8 Houston, Go ahead.

SC (Too low to be understood)

CAPCOM Apollo 8, Houston. Unable to copy. After about 1 minute of this configuration, we're going to return to normal voice and at that time we should be able to hear you better.

SC Roger. What telemetry is the (garble) going through right now?

CAPCOM Roger. We are in mode 7-10 in the comm test modes in tape 223.

CAPCOM Apollo 8, Houston. Free switch positions. Telemetry input PCM switch to LOW, S-band normal mode voice to VOICE, S-band normal mode PCM to PCM. I say again Telemetry input PCM switch to LOW, S-band normal mode voice to VOICE, S-band normal mode PCM to PCM. Over.

CAPCOM Reading you very weak.

SC Reading you loud and clear. Houston.

CAPCOM Apollo 8, Houston. Requesting S-band

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CAPCOM normal mode ranging to RANGING. I say again. S-band normal mode ranging to RANGING. Over.

CAPCOM Apollo 8, Houston. Requesting S-band normal mode ranging to RANGING. Over.

CAPCOM Apollo 8, Houston. Over.

SC Houston, Apollo 8. How do you read?

CAPCOM Beautiful, Frank. I'm reading you loud and clear. How me?

CAPCOM Apollo 8, Houston. How do you read?

Over.

CAPCOM Apollo 8, this is Houston. Over.

CAPCOM Apollo 8, this is Houston. Over.

SC Go ahead, Houston. Apollo 8.

CAPCOM Roger. Reading you loud and clear. How me?

SC You're loud and clear, Michael.

CAPCOM Okay. We're still looking for the S-band normal mode ranging to RANGING.

SC I guess we didn't hear that one. Going to RANGING.

CAPCOM Roger.

SC We're in RANGING now.

CAPCOM Thank you.

SC Houston, Apollo 8. What size antenna are you going to now?

CAPCOM Apollo 8, Houston. We're working to extension a 30-footer. Over.

SC Okay. Our signal strength for our AGC is pretty low up here.

CAPCOM Roger. I understand.

CAPCOM Apollo 8, Houston. Requesting S-band off state to OFF. This should put us back in the normal configuration. Over.

CAPCOM Apollo 8, Houston. Over.

SC Go ahead, Houston. Apollo 8.

CAPCOM Okay. S-band off state to OFF. That returns us to normal for configuration and we need a couple of items from you. First, the PMC and LMC status report (including PIV readings on all three crewmembers) and we'd like to know did you chlorinate the water after your last meal. Over.

SC No, we haven't chlorinated the water, yet and we'll get the other for you.

CAPCOM Roger. Thank you.

SC Houston, do you show a FM - Houston, Apollo 8. Do you show the FM on now?

CAPCOM Stand by and we'll check it, Bill.

SC Because our S-band off state has been OFF for possibly - we don't have control of it.